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SOUTH AMERICA

ANNUAL ADDRESS BY THE PRESIDENT

GARDINER G. HUBBARD

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(*Presented to the Society December 19, 1890.*)

Two years ago I selected for my annual address *Africa, or the Dark Continent;* last year *Asia, the Land of Mountains and Deserts;* this year I have chosen *South America, the Land of Rivers and Pampas.*

The recent meeting of the Pan-American Congress has called attention to South America, a part of our continent under republican forms of government and rich in products which we lack, while it relies mainly on other foreign countries for goods which we manufacture. North America and South America should be more closely united, for the one is the complement of the other.

The prominent features of South America are its long ranges of mountains—next to the Himalayas the highest in the world,—its great valley, and its immense plateau extending from the Straits of Magellan to the Caribbean sea.

THE MOUNTAINS.

The Andes rise in the extreme south at Cape Horn, run in a northerly course through Patagonia and southern Chili; thence continuing in three nearly parallel ranges, the western chain called the Andes, the others known as the Cordilleras, through Peru,

Bolivia and Ecuador to Colombia. The Cordilleras and the Andes are connected in several places by knots or cross-chains of mountains. In Colombia the Andes turn to the northwest, reaching their lowest elevation at the Panama canal, and continue thence, through Central America and North America as the Rocky Mountains, to the Arctic ocean. Near the source of the Magdalena and Cauca rivers in Colombia, the eastern range is deflected to the east along the northern coast of South America. The central range disappears between the Magdalena and Cauca rivers.

The Andes form the water-shed of the continent. The waters on the western slope flow into the Pacific ocean. The rivers that rise on the eastern slope, in northern Peru and Ecuador, force their way through the Cordilleras and at their foot drain the montaña of Bolivia, Peru and Brazil. In the southern part of Peru and upper Chili there is a broad sierra or plateau, at an elevation of from twelve to fourteen thousand feet. The streams that rise in this sierra either empty into salt or alkaline lakes or sink into the ground.

Unlike all other long ranges of mountains, the continental or eastern side of the Cordilleras is nearly as precipitous as that extending to the Pacific. Craters of extinct volcanoes and volcanoes now in eruption are found in all parts of the chain. In Ecuador there are fifty-two volcanoes, and twenty of these, covered with perpetual snow and presided over by Chimborazo and Cotopaxi, rise out of a group of mountains encircling the valley of Quito, and are all visible from a single point. Three are active and five others have been in eruption at one or more times since the conquest. One of these, Sangai, is the most active volcano on the globe : it sends forth a constant stream of fire, water, mud and ashes, and some assert that it has done so without intermission for 300 years ; 267 explosions have been counted in one hour. This is also the land of earthquakes : in 1868, 50,000 lives, we are told, were lost in one day ; the tremor was felt over four countries and from the Andes to the Sandwich Islands. The tidal wave washed a gunboat of the United States on shore at Arica in lower Peru, 1000 miles to the south, and sixteen hours later the wave was felt across the Pacific at New Zealand.

A range of mountains separates Eastern Venezuela and Guiana from the valley of the Amazon. Other ranges south of the Amazon run southwestwardly, following the Atlantic coast line from Cape St. Roque to the Rio de la Plata.

River Systems.

A great oceanic current flows along the western coast of Africa to the equator, where it is deflected across the Atlantic ocean and becomes the equatorial current. On reaching the coast of South America near Cape St. Roque, it is again deflected north and south. Trade winds blowing over the equatorial current reach the coast at Brazil surcharged with vapor ; as they follow up the valley of the Amazon the vapors are partially condensed and frequent showers refresh the land ; but when the clouds at the foothills of the Andes meet the colder winds from the south and strike the snow summits of the Cordilleras, all the moisture is condensed, and the rain falls in tropical showers for half the year and waters the largest and richest valley in the world.

In this valley, among the Cordilleras, three great rivers—the Orinoco, the Amazon and La Plata—rise. The mountain ranges north and south of the Amazon divide this great valley into three lesser valleys, down which the Orinoco, the Amazon and La Plata flow, watering three-fourths of South America.

The Orinoco.

The headwaters of the Orinoco rise in two ranges of mountains ; the Cordilleras in the west, and the mountains of Venezuela many hundred miles to the east. Four hundred tributaries, abounding in beautiful falls and cataracts, unite to form this great river.

The whole valley for 1600 miles is filled with dense and tangled forests. Noble trees of unrivalled beauty blossom in endless prodigality. Birds of gorgeous plumage nestle in their lofty recesses. Tall ferns, vines, creeping plants and parasites form a dense tangle of undergrowth, swarming with life. Myriads of insects in great variety, reptiles of strange and singular form, lizards and venemous serpents find their homes and sustenance in the wild, dense mass of vegetation.

The Amazon.

The valley of the Amazon collects its waters from a region 1800 miles wide from north to south and 2500 miles long from the Andes to the Atlantic ocean. Even at the foot of the Andes the Amazon is a mighty river. The valley rapidly narrows to a width of 600 or 700 miles, and then more gradually to the ocean,

where it is only 150 miles wide. Its total fall from the foot-hills of the Andes to the Atlantic is very slight, not over three or four hundred feet, and probably considerably less.

The rims of the valley are formed of diorite and sandstone, and are raised only a little above the flood-plain, which is formed of mud and silt, the detritus brought down by the Amazon and its tributaries. The flood-plain is from fifty to one hundred miles wide, gradually narrowing as it approaches the ocean. Through this valley the Amazon cuts its way, separating often into channels which sometimes run parallel to each other for several hundred miles, frequently forming large islands, or expanding into lakes. Similar flood-plains are found on all its larger tributaries.

Up from the ocean into this valley an immense tidal wave rolls, with a bore, twice a day, forcing back the current of the Amazon 500 miles and inundating a portion of the flood-plain.

In the early autumn the equatorial rise commences in the head-waters of its tributaries, far south of the equator. The rains and melting snow raise the streams, and these the waters of the Amazon. As the sun crosses the equator and moves to the north the rain follows its course, and the branches that have their source in the east and northeast add their flood to the waters of the southerly branches. The flood in the Amazon is thus continued for nearly six months, raising its waters from 30 to 50 feet. The channels are filled, and the flood-plains are overflowed. The whole valley becomes a net-work of navigable waters, with islands and channels and lakes innumerable, forming a great inland sea, which the Brazilians call the Mediterranean of America. The upland, though only a little above the flood-plain, is rarely overflowed.

The plants and animals of the flood-plain were formerly considered as distinct from those of the upland as are the plants and animals of Europe from those of America; but later investigations show that there is but little difference between the species.

The sea breeze blows up the valley about a thousand miles. Then for 1500 miles the atmosphere is stagnant and sultry; the climate is that of a permanent vapor bath. The dense foliage forms dark, lofty vaults which the sunlight never penetrates, and over all hangs a perpetual mist. The abundance and beauty of vegetation increases, and the trees which at the mouth of the river blossom only once a year, here bloom and bear fruit all the year round.

XUM

Many great rivers run into the Amazon from the north and the south, most of them navigable, for many hundred miles. The Madeira, its greatest tributary, after running 2000 miles, empties into the king of rivers, without making any perceptible difference in its width or depth.

This mighty current, rushing into the ocean, meets the equatorial current and for over one hundred miles keeps on nearly a straight course, when the stronger and mightier oceanic current deflects it to the north. At from 200 to 300 miles from land, the sea is strongly tinged, and in April and May has nearly the clay-yellow hue of the Amazon. And even further north, about 400 miles from its mouth, the naturalist on the Amazon tells us, "we passed numerous patches of floating grass mingled with tree trunks and withered foliage; among these I espied many fruits of the Amazonian palm. And this was the last I saw of the Amazon."

The Rio de la Plata.

The La Plata, the outlet of the waters of central South America, is formed by the union of the Uruguay and Parana, about 150 miles from the ocean; a little lower down, at Montevideo, it is 62 miles wide and widens rapidly to the Atlantic, where it discharges more water than all the rivers of Europe. The tributaries of the Parana are fan-shaped. Its most eastern branches rise in the mountains of Brazil, within seventy miles of the Atlantic ocean; and 1500 miles away, on the other side of the continent, its most western tributaries rise only 125 miles from the Pacific.

Steamers ascend the Parana, Paraguay and Cuyaba, 2100 miles to Cuyaba, and the river with its branches is navigable for 5000 miles.

The San Francisco.

The San Francisco, about 1800 miles long, rises near Rio de Janeiro and flows north about 1200 miles between parallel ranges of mountains, then turns east and forces its way through the coast range to the Atlantic ocean. It runs through the gold and diamond regions of Brazil, and has a considerable population along its banks. It has many falls and rapids, and considerable slack-water navigation.

General Description.

In Asia, the different countries have natural boundaries; the people, soil and climate of one country are unlike those of others. In Europe there are few natural boundaries, though different races inhabit the several states.

In South America only one dominant race is found, and though natural boundaries exist, yet they do not serve as boundaries to the different states, other than Venezuela and Guiana. Venezuela and Guiana are watered by the Orinoco and by several rivers that flow from the Amazonian mountains to the ocean. The whole coast is low and fertile, but hot and unhealthy. The principal product is sugar, raised by negroes and coolies. The interior is sultry and thickly wooded; it is inhabited by Indian tribes, the principal of which are the cannibal Caribs, and by negroes as uncivilized as any of the tribes in Africa. Guiana is controlled by the English, French, and Dutch. Cayenne, the prison for French convicts, is the capital of French Guiana.

Colombia and Ecuador occupy the northwestern part of South America. They are situated on both sides of the Andes, and have every variety of climate. The country is well watered; fertile but unhealthy on the coast, fertile and healthy on the elevated plains, cold and barren on the mountains.

In Brazil, besides the Amazon, La Plata and San Francisco, there are several large rivers with fertile valleys; but occasional droughts, sometimes lasting for two years, will prevent portions of Brazil from becoming densely inhabited.

On the Pacific coast south of Ecuador, the rainfall becomes less and less. For three thousand miles along the coast of Peru and Chili there is no natural harbor; a plain from ten to fifty miles in width extends from the Pacific to the foot-hills of the Andes. The Antarctic current runs along this coast; the southeasterly winds blow over it on to the land and cool the air; but as the winds are of low temperature their scanty vapor is dissipated by the heat radiated from the land, and not a drop of rain refreshes the thirsty soil. Many mountain torrents run from the snow-clad summits of the Andes, and the beauty of their narrow valleys forms a grateful contrast to the dry and barren sands of the plain.

In the southern part of Chili and in that part formerly called Patagonia, rain is abundant and the country is fertile.

The longest stretch of low and comparatively level land to be

found in the world extends through the center of South America. A boat starting from the Caribbean sea could sail up the Orinoco over a thousand miles, then down the Casquiare, which runs from the Orinoco into the Rio Negro, down that river to the Amazon, up the Amazon to the Madeira, then up that river and one of its branches through Brazil and Bolivia, and with a short portage of six and a half miles to one of the branches of the Paraguay, down the Paraguay and La Plata to the ocean.

The level land crosses the La Plata and continues southward through the Argentine Republic and Patagonia to the Straits of Magellan. Within this plain lie all the interior of Venezuela and Brazil, a part of Bolivia, all Paraguay, Uruguay, and the Argentine Republic. The pampas resemble our prairies, but run from north to south, while the prairies run from east to west.

The streams in the plain south of the valley of the La Plata rise in the Andes and flow southeastward to the Atlantic.

The Aborigines.

The aborigines of America, except the Esquimaux, are unlike the natives of other countries; the most marked difference is in their language. They are divided into a number of tribes differing from each other in some respects, yet with manners, customs and religious beliefs generally similar.

In South America there are more than one hundred distinct languages, and two thousand dialects. About five or six million Indians have as many dialects as are found among the 800,000,000 inhabitants of Europe and Asia. Their languages are polysynthetic, being of a higher type than the agglutinative languages. In the polysynthetic tongue the substantive, adjective and verb are joined or combined, and oftentimes a whole sentence will be comprised in a single word.

The natives in the valleys of the Orinoco and Amazon are forced to cultivate a little ground on the flood-plains, as the forests are thick and impenetrable. They live principally on the fruit of the palm (of which there are five hundred varieties), cocoa and bananas, fish and turtles. There are no roads or paths through the forests except the numerous channels of the rivers, called igarapes or furos. The tribes on the pampas live principally on game and wild cattle.

Humboldt tells us that the navigator on the Orinoco sees with surprise at night the palm trees illuminated by large fires. From

the trunks of these trees are suspended the habitations of a tribe of Indians, who make their fires on mats hung in the air and filled with moist clay. The same palm tree furnishes also food and wine and clothing, and thus supplies every want and even the luxuries of life.

The Indian race as a whole is believed to be superior to both the negro and the Malay, as neither of those races has ever attained to the civilization of the Incas of Peru or of the Indians of Mexico and the Aztecs of Central America. Many of their myths and folk tales are common, not only to the Indians of one part of the country, but also to other tribes in distant parts of the continent, and even to the negroes of Africa, and the Arabs of upper Egypt. All the tribes on the continent have substantially the same habits of life, the same methods of warfare, the same general characteristics, and a language built substantially on the same plan.

From these observations it might seem that the Indian tribes of South America were allied to those of Africa or to the Malays, but on further consideration the similarity seems due rather to a like stage of civilization than to identity of race.

The Incas of Peru.

In crossing from Arequipa in Peru to La Paz in Bolivia, the road ascends the Andes, makes a slight descent into the barren, desolate valley between the Andes and Cordilleras, crosses Lake Titicaca, and then descends to La Paz. Lake Titicaca, the largest lake of South America, is on a plateau between twelve and thirteen thousand feet in height, the most elevated table land on the globe, excepting Thibet. This lake is surrounded by lofty, snow-clad mountains, the highest of which is Illampa, 22,300 feet in height.

On this lake are the remains of the most ancient civilization of South America. Cyclopean ruins of temples and fortresses stand as perpetual monuments of a vanished culture; when and by whom they were erected, we know not; their builders left no other record of their existence. The wandering Indians told the first Spaniards that they existed before the sun shone in the heavens. From one of the rocky islands of Lake Titicaca, about the year 1000 or 1100, the Sun, parent of mankind and giver of every good gift, taking compassion on the degraded condition of

the Indians, sent two of his children, Manco Capac and Mama Oello Huaco, to gather the wandering tribes into communities, to teach them the arts of civilized life and to inculcate the worship of the Sun. From Lake Titicaca, this brother and sister, husband and wife, went down the valley to Cuzco, where they were bidden to found an empire. Manco Capac was thus the first Inca. There were ten or twelve Incas before the conquest of Peru. Their conquests extended through the entire valley of the Cordilleras, until over four hundred tribes, with a population of many millions, became subject to their dominion.

The territory of the Incas extended from the southern part of Chili northward into Colombia, beyond Quito, a distance of two thousand miles, and west to the Pacific Ocean. On the eastern slope of the Cordilleras, toward the great plain of the Amazon, the Incas met a stronger and more savage people, with whom they were in constant warfare. In the several passes of the Cordilleras they constructed fortifications to protect their borders and prevent invasion.

The capital of the territory, Cuzco, was situated in a beautiful valley ten thousand feet above the sea. Amidst the Alps, such a valley would be buried in eternal snow, but within the tropics it enjoys a perpetual spring. Here the Incas loved to dwell, and remains of immense fortresses, palaces and temples, testify to their power and culture, and to the number of their subjects. Tens of thousands of laborers must have been required to construct such edifices. When we reflect that these people had no beasts of burden except the llama, which could only carry light loads, and no mechanical means for transporting the vast blocks of stone used in constructing these buildings, we are astonished at what they accomplished. The pyramids of Egypt are not more wonderful.

Great highways were built, running north, south and west, connecting different parts of the Empire. One followed the valley between the Cordilleras and Andes to Quito, another crossed the Andes and followed the sea-coast north and south to the extreme limits of their country. All traveling was on foot. Large and comfortable tambos, or inns, were erected every few miles, and larger ones at the end of a day's journey. Couriers were stationed at regular intervals, each of whom had his allotted station, between which and the next it was his duty to run at a certain pace bearing his message, and on his approach to the

next station he signalled to the next chasquir, as the couriers were called, to be ready to carry forward the message. In this way, it is said, about 150 miles a day were made.

These couriers traveled more quickly than the mail-carriers of Europe, and the means of communication were then, Squier tells us, far better than they are to-day. Many of these old tambos are still maintained. One in which Squier spent the night was 180 feet in length, with rooms forming three sides of a court.

The country of the Incas had every variety of climate, and the products were those of every part of the new world. On the coast, perpetual summer reigns, with all the variety and beauty of tropical vegetation. At a higher elevation, the trees are always green, and while one kind sheds its blossoms and ripens its fruit another is budding and unfolding its bloom. Meantime, on the top of the mountains is eternal winter. In some places, as at Potosi, the changes of temperature are frequent and extremes of heat and cold are experienced in a single day. The weather in the early morning is frosty; in the forenoon, mild and balmy; in the afternoon, scorching, and in the evening, cool and delicious.

On the Pacific slope of the Andes, reservoirs were constructed, from which irrigating canals watered the whole plain now lying desolate and barren.

The conquered tribes were incorporated into the nation and became the people of the Incas. If the conquered tribe was strong and warlike, some of its members were removed to distant parts of the country and were replaced by the inhabitants of those regions, to whom privileges and immunities were given as compensation for the change of home. The conquered tribes quickly realized the benefits of the rule of the Incas and became faithful and loyal subjects.

The government of the Incas was a paternal despotism controlling the most minute affairs of daily life. Knowledge, the Incas taught, "was not intended for the people, but for those of generous ability, for it would render persons of low degree vain and arrogant."

The Incas established a communal system similar to that of Russia. One-third of the land belonged to the Inca, one-third to the priests of the Sun, and the remainder to the people, who were required to cultivate the land of the Inca and of the priests, as well as their own. The land was divided among the families yearly, according to their number. Every newly

married couple received a stated portion which was increased as the family increased.

Their only means of writing was by a cord, called quippus, about two feet long, composed of threads of different colors twisted together, from which a quantity of smaller threads hung like a knotted fringe. The colors denoted sensible objects or sometimes abstract ideas, though the principal use of the quippus was for arithmetical purposes.

The civilization of the Incas appears to have been of a higher order than that of the Mexicans. It is not probable that hieroglyphics were in use among any of the South American Indians, though it is said that traces of a pictorial alphabet have been found. The people were contented and happy, although they were deprived of personal liberty, although their daily life was supervised by their rulers, and although they held only communal rights of property. They had neither ambition nor strong love of country.

When Pizarro landed in Peru there were two Incas, one at Cuzco and the other at Quito, and the bitter conflict which was raging between them made the conquest of both easy. Pizarro had only 180 followers, but they were Spanish cavaliers, carrying fire-arms; and with this small force he overturned the Incas and enslaved the people. The descendants of the Quichuas, or the people of the Incas, still inhabit the land—a mild, apathetic, servile and dejected race. It is said that after the conquest the women put on a black mantle, which they have worn ever since, as perpetual mourning for the last of the Incas.

There are a few descendants of Spaniards in Peru, but the population consists chiefly of the descendants of the Quichuas and mixed Spaniards and Quichuas. The Peruvians of to-day are less civilized than those who lived 400 years ago; they have less liberty and are poorer.

Discovery of the Amazon.

Great rivers have usually been discovered and explored by ascending them from the ocean to their sources; the Congo and the Amazon were explored downward from their sources to the ocean.

Three hundred and fifty years ago, Gonzalo Pizarro, then governor of Upper Peru, heard of a land of silver and gold, spices and precious stones; a land where spring reigned and all tropical fruits abounded. He determined to follow the little

stream which, rising in the Andes, near Quito, flowed eastward; to explore the country, and find the happy land. He set out with 350 Cavaliers, mounted on Spanish horses and attended by 4000 Indian slaves.

The first part of the route was easy; the little stream soon became a river, then broadened into the Napo; but the farther they went, the slower and more difficult was their progress as they passed from the open forest and the cool and invigorating breezes of the Andes into the sultry valley of the Napo. Their way now led through forests more dense, darker and more impenetrable than those described by Stanley, for the valley of the Amazon is richer than the valley of the Congo. Natives armed with poisoned arrows opposed their progress; food became scarce, treachery was on every side, and their number gradually diminished by death and by desertion of the slaves.

The natives told them of a greater river than the Napo which they would find a few days' voyage farther down. This river, they said, flowed through a more populous and richer country, where food was abundant and gold was found in every stream. Pizarro determined to build a bark and to send Orellano as commander to find and return with food and succor. For this vessel, the forests furnished the timber; the shoes of the horses were converted into nails, distilled gum was used for pitch, and the garments of the soldiers were a substitute for oakum. In two months, a brigantine was launched, the first European vessel that ever floated on the waters of the Amazon. The Napo grew broader and deeper as the little company rapidly floated down, until it became a mile wide. Three days after they left Pizarro, they saw before them a river, many times larger than the Napo, which the Indians called Parana-tinega, King of Waters; but we call it the Amazon. There was no cultivation, little food could be obtained, and the Indians were hostile instead of friendly. What was to be done? Behind them was the wilderness, before them the promised land. The journey back would be difficult and dangerous; the temptation to explore the wonderful river was too great to resist. One man alone was faithful to Pizarro, and he was left on the bank while Orellano sailed down the river. The wonder of the explorers daily increased as other rivers larger than the Napo flowed into the Amazon, now on the north, more frequently on the south. Month after month passed, the river grew so broad that they could not see from one side to the other.

Great islands were passed, channels running parallel with the main stream larger than any river they had ever seen. Still on they went, till after several months they reached the Atlantic Ocean. Then they sailed north in their little boat, skirting the coast to Trinidad, where they found a vessel which bore them to Spain. They recounted the story of the great river; the wonderful country through which they passed; and the rich mines of which they had heard. They told fabulous tales of the Amazonians they had encountered, strong and masculine women, armed with bows and arrows, living by themselves, admitting men into their country only one month in the year, killing or sending away the male children and training the girls to become amazons and warriors.

Orellano was received by the Queen; his treachery was forgotten and a new expedition was sent out under his command; but he died before reaching the river.

Meantime, Pizarro and his followers slowly and with difficulty made their way down the Napo, taking as many months to reach the Amazon as Orellano had taken days. They looked in vain for their companions, but found only the solitary man who had been left behind, scarcely alive, and from him learned of Orellano's desertion. Further explorations being impossible, they turned back, reached Quito two years after their departure, their horses gone, their arms broken or rusted, the skins of wild animals their only clothing. "The charnel house seemed to have given up its dead, as they glided onward like a troop of spectres." Half of the Indians had perished, and of the three hundred and fifty cavaliers only eighty were left.

Such was the end of an expedition which for dangers and hardships, length of duration, and constancy displayed is probably unmatched in the annals of American discovery.

Guiana.

Guiana is the only country of South America not inhabited by the Latin race. It was acquired for Great Britain by one who acted contrary to his instructions in attacking a power, Spain, with which his own country was at peace.

Gonzalo Pizarro, on his journey down the Napo in 1539, heard wonderful stories of a golden city far away on the banks of the Orinoco, surrounded by mountains of gold. Rumors of this golden city were carried by English navigators to Great Britain,

with legends of a prince of Guiana, whose body, first smeared with turpentine, was then powdered with gold dust, so that he strode among his people a majestic golden statue. Adventurers started in search of this El Dorado, some from Peru, others from Quito and from Trinidad: but the golden city was never found. They, however, brought back reports of chiefs whose bodies sparkled with gold dust as they danced, who had golden eagles dangling from their breasts and great pearls from their ears; they told of mines of diamonds and gold, and of the natives who longed to exchange their jewels for jews-harps.

Sir Walter Raleigh determined to find this country and bring to his queen its fabulous riches, for he believed that the silver and gold mines of Mexico and Peru had made Spain the first state in Christendom—"that purchaseth intelligence and creepeth into counsels and endangereth and disturbeth all the nations of Europe."

In 1595, Sir Walter sailed from England and arrived at the Isle of Trinidad, where he overthrew the Spaniards, then sailed up the Orinoco, or one of its branches, four hundred miles, until hunger and sickness compelled him to return. Although he did not reach the golden city, he could see the mountains far in the distance which he believed surrounded it, and he found the shining sand on the banks of the Orinoco. In Guiana he raised the flag of England and compelled the Indians to swear fealty to his queen.

Twenty years later, a prisoner in the Tower, he was released in order to make a second voyage in search of this El Dorado for King James. He sailed in 1617, accompanied by his eldest son; but disaster and sickness met him at every step. He reached the Orinoco again, too feeble to land. So his son and Captain Keymis went instead. Keymis returned after a month of exploration, bringing Raleigh the news of the death of his son in an attack on a Spanish town. He brought reports of the golden city, of the mines of gold, diamonds and emeralds, but neither gold, diamonds nor emeralds to confirm the truth of these reports. Raleigh said, "I am undone;" Keymis replied, "I know then, Sir, what course to take." He went to his cabin and killed himself.

Raleigh returned to England, a broken down old man. The Spaniards demanded his life of James as they had demanded it of Elizabeth after his first expedition, on the ground that in time of

peace Raleigh had attacked the Spanish forces and invaded their country. Elizabeth had refused, but James yielded. Raleigh was executed, but Guiana became an English colony.

The gold and silver mines of Peru have failed ; little gold has been found in Guiana, but its rich and fertile soil, watered by tropical rains, has been a source of greater wealth than the gold mines of Peru.

Population of South America.

As the countries of South America were all settled at about the same time and by the same race and have passed through a like history, they can be considered as a whole.

The United States and Canada, with a rough, uncongenial climate and sterile soil, were settled by the Anglo-Saxons, the remainder of the western continent by the Latin race and, excepting Brazil and Guiana, by Spaniards. In North America the Anglo-Saxon race has dominated, carrying civilization from the Atlantic to the Pacific, expelling and exterminating the aborigines. There has been no mingling of the Anglo-Saxon and Indian races, no backward step, but ever civil, religious and intellectual progress. The Latin race conquered Central America and South America, a perfect Eden of natural loveliness, one hundred years prior to the settlement of the Anglo-Saxon ; yet to-day they constitute but a thin layer over a scarcely populated country. Their leaders were men of unbounded ambition, rapacious, of great endurance, but cruel and unscrupulous. They sought adventure, expecting it would bring them gold and silver. For that end they plundered, despoiled and enslaved the Indians. Gold and silver flowed into their hands ; luxury, effeminacy, and weakness followed.

The Spaniards in America have scarcely retained the civilization they brought from the old world. They have intermarried with the Indians, and this mixed race is said to inherit the vices of each of their ancestors without the virtues of either.

A sparse population, mostly Spanish and foreigners, inhabit a zone ten to twenty miles in depth along the coast of South America, from the Bay of Panama to the Caribbean sea. All the cities and settlements, excepting a few in the Argentine Republic, are near the coast.

Back of this zone, on the Pacific, is a mixed Spanish-Indian population, much larger than the Spanish and foreign population;

and on the Atlantic a population which is Spanish-Indian, Spanish-Negro, and Negro-Indian, occupies a zone from twenty to one hundred miles wide. Beyond the first zone a few Spanish families and foreigners are found at the gold and silver mines, on the pampas, at the cattle ranches, and on a few haciendas in Peru and Chili. In Brazil the Portuguese and some Englishmen and Germans raise coffee and sugar, and oversee the diamond and gold fields. On the Amazon there are a few small settlements to collect the India rubber and cacao of that valley.

Save these sparse settlements, the interior of South America is inhabited by wild tribes of Indians, uncivilized save for the presence of a few Catholic priests, who have given the Indians the cross and the image of the Virgin Mary, which they worship, mingling the Catholic religion with their old idolatries and barbarous rites. The natives are believed to be more idle and less civilized than when the Spaniards discovered America.

The Spaniards are the grandees of the country; too proud to work, they leave all business to the foreigners and all labor to the Indians, retaining in connection with the half-breeds all political power. When the regents appointed by Spain were expelled in the early part of the present century, republics were established, but they were republics only in name; the people were neither educated nor fitted for self-government. Their presidents generally exercised the powers of dictators and often assumed that title. They have rarely enjoyed a long rule, for their power and position were sought by others. Revolution in these countries has passed from the acute to the chronic stage.

A recent traveller in Peru, who wished to inspect its railroad system, was informed that only 26 miles were in running order, the remainder being under the control of the revolutionists who were then less than 80 miles from the capital. He asked why the rebels did not take Lima, the capital, and was told, "because there is no unanimity among them; they are suspicious of each other, and cannot depend upon any one man." Instead of being anxious to serve their country they are only interested in robbing her.

Another traveller in Bolivia, who witnessed some of these revolutions, says they sometimes occurred three times in as many weeks, and that it would have been ludicrous had not their results been often violent and tragic. There has been no settled government, no continued peace, no permanent policy, in any Spanish

country. The hope for the future is that the English, German, and French population will increase and become permanently identified with the country; they will then take an active interest in politics and direct the policy and administration of the government.

Commercial and banking business is in the hands of the French, Germans, and English. The Italians carry on a small trade at corner groceries and fruit stores; the French keep the hotels and restaurants; the English and Germans are the shippers, merchants and bankers.

Regular lines of English, French, and German steamers run from Europe to Panama and thence along the western coast of South America, stopping at ports en route; some return by Panama, others sail around Cape Horn to Europe by Buenos Ayres and Rio Janeiro. Other lines run direct from Europe to Brazil, and twenty-four lines connect Europe and the Argentine Republic; while there are only four lines of American steamers trading to South America.

Brazil.

We have given a general description of South America, but three countries—Brazil, the Argentine Republic and Peru—require further notice: Brazil, because it is the largest country, occupying three-sevenths of South America, and the only considerable state that was not settled by the Spaniards; the Argentine Republic, because it is the largest and most populous of the Spanish states and, with Peru, illustrates the political and financial phases through which the Spanish republics have passed.

The valley of the Amazon makes Brazil the most fertile region of the world. The tropical woods are so thick and the creepers and undergrowth so luxuriant that animal life is almost entirely confined to the trees above and the waters below.

The valley is not unhealthy, and, though under the equator, the climate is tempered by the trade winds and the evaporation from the vast Amazonian waters. Beyond the valley is the montaña district, where the land is higher and the climate semi-tropical, where there are few creepers, little underbrush, and open forests, and where both animal and vegetable life is less abundant. Southward, beyond the montaña district, are the evergreen pampas, where no trees grow and where the animal and vegetable life are unlike either that of the valley of the Amazon or that of the

montaña. As in Africa, so here, men who live in the dark forest, die in the open. Mr. Stanley selected thirty dwarfs from the tropical forests of Africa to take to England, but as soon as they came into the grass-lands, the clear air and bright sun, they languished and died before the coast was reached.

Northeast of the pampas, on the Atlantic coast, south of the Amazon, is a province bounded on the south by a range of high mountains, where rain is abundant; at Maranhao, its seaport, there are 280 inches of rainfall in the year. South of Maranhao there is much less rain; and instead of two seasons, the wet and the dry, which prevail in the valley of the Amazon, there are the four seasons of the year, but without extremes of heat and cold.

Over the greater part of Brazil grows the coffee tree, the sheet-anchor of Brazilian prosperity, since it furnishes 60 per cent. of all the coffee grown in the world. The plant is not indigenous to Brazil, but was brought there about one hundred years ago from the old world.

Brazil, inhabited by the Portuguese, with an imperial government, has been saved from the anarchy and insolvency of the Spanish republics. Her railroads have been built with economy and have been generally successful. It had a population in 1885 of 11,000,000; two-thirds of whom were Indians and negroes, and many of the negroes were slaves. Slavery existed longer in Brazil than in any other civilized country; the lash was commonly used on the plantation, and work continued from early in the morning until late at night until 1888, when a law was passed finally emancipating 1,300,000 slaves. It was opposed by the planters, who said freedmen would not work, but would let the coffee and sugar plantations fall to ruin. It was probably this act which caused the overthrow of the empire, for in revenge the planters joined the insurgents in establishing the Republic.

The Portuguese and Brazilians are more peaceable and orderly than the Spaniards or Spanish-Americans; we may therefore reasonably hope that Brazil will not repeat the history of the Spanish republics, which has been one of disintegration, for these republics have separated into two or more States. The greatest difficulty in maintaining its immense domain will arise from the enormous distances and the time required to travel between different parts of the country. From Rio de Janeiro to Matto Grosso is 140 days' journey by land, and by water the distance is 3000 miles. Communication is maintained by steamer

through the Argentine Republic up the Rio de la Plata and its branches. Although the country has many long and navigable rivers, yet the means of intercommunication are very poor; for the rivers are little used, and the forests, creepers, and undergrowth are so dense that the country back of the river-banks is impenetrable, and even if roads should be opened the soil is so luxuriant that they would be quickly overgrown and soon become impassable.

Lines of steamers have been subsidized by the Brazilian government and run up the Amazon 2000 miles to Tabatinga, at the boundary line of Peru; there connecting with lines subsidized by the Peruvian government, which run 1500 miles farther up the river. These vessels carry supplies to the settlers and bring back India rubber, Brazil-nuts, cacao, quinine, and the beautiful woods of the forest.

Yet steamers are rarely seen on the Amazon; they have few passengers, and have not opened the country; we are told that the Mississippi carries more vessels in a month, and the Yang-tse-kiang in a day, than the Amazon in a year.

The Argentine Republic.

The history of South American republics is illustrated in the Argentine republic.

It is a vast pampas or prairie, extending from Brazil to the Andes, and from Bolivia with a southeasterly trend 2000 miles to southeastern Terra del Fuego.

The climate of the northern portion is tropical; of the central part, semi-tropical; of the extreme south, temperate or cold. The country is generally well watered excepting in the northwestern part, where the land is dry and alkaline, like the arid regions of North America. The soil is a rich, deep loam, from four to six feet in depth, excepting in Patagonia and the western pampas, where there is a coarse gravel and detritus from the Andes. Instead of the dense tropical forest of the Amazon valley, the pampas are covered by a coarse grass, three or four feet high, growing in large tussocks and all the year round of a dark green. The strong grass crowds out all trees and almost all plants, so that scarcely a flower relieves the uniform, everlasting verdure.

Instead of the arboreal animals of the Amazon there is the rhea or American ostrich, "ship of the wilderness," adapted to the

pampas, but unable to live in the forests. The gauchos have hunted it for the last three centuries, but it is now passing away and will soon be lost to the pampas, as the buffalo has been to the North American prairie.

The pampas are far better adapted to the raising of cattle than our prairies, for the grass is always green and the winters are milder. Cattle, horses, and sheep imported by the Spaniards and turned on to the pampas rapidly increased, and now immense herds feed on the plains.

The Indians who inhabit the pampas, instead of being confined to one locality and journeying only by canoe, like the Indians on the Amazon, wander over the length and breadth of the pampas, hunting the ostrich and cattle. The cattle are tended by gauchos, as the cow-boys are called, half-breeds as wild as the herds they tend. Constant warfare exists between the Indians and the gauchos, unless they unite to attack the settlers. After one of the Indian raids the government dug an immense ditch from a river to the Andes and drove the Indians to the farther side, and since then there have been fewer raids—and fewer Indians.

The land was held in large blocks of many thousand acres, worked by overseers and gauchos. The animals were killed by hundreds of thousands for their skins. This state of things is, however, gradually passing away, for during the last twenty years emigrants from the old world have settled in the country as farmers and planters.

The fourteen provinces which form the Argentine Republic have never been welded into one nation, and have seldom had a moment's peace. The gauchos have been a continual scourge, and the gaucho generals its rulers and harriers combined. Unfortunately, here, as in other Spanish states, one dictator has succeeded another. Thirty presidents, or dictators, have reigned within fifty years. At one time five provinces had each a separate dictator. The neighboring republic of Uruguay, formerly a part of the Argentine Confederation, had 26 revolutions in the twenty-three years from 1864 to 1887.

For some time Buenos Ayres and its dictator ruled the republic; then the country provinces rebelled, and civil war ensued; one province was arrayed against another, and all against Buenos Ayres. The provinces prevailed and the gaucho general, Rosas, occupied Buenos Ayres. Scarcely was this civil war ended when a war arose with the republics of Uruguay and Paraguay.

Money was required to pay the army and the cost of civil and foreign wars. Every dictator had his friends for whom provision must be made. Large debts were created; banks were chartered; $200,000,000 of paper money were issued. There were several different circulating mediums; each province strove to outdo the others in the issue of a currency which quickly depreciated. Companies for different purposes were organized, and many were subsidized, directly or indirectly. We are told that in one case $1,500,000 was paid for a concession, and that "Turkish officials, who have hitherto been the champion artists in backsheesh, leave off where Argentine blackmailers begin; the price of a drainage scheme at Buenos Ayres would buy a whole cabinet of pashas at Galata."

Railroads were built running from Buenos Ayres in different directions, as each province demanded a railroad, with little regard to its population or business.

A road was commenced to cross the Andes and open communication between the Atlantic and Pacific over mountains which had never been crossed by a carriage of any kind.

The country was not settled so rapidly as the rulers desired. Inducements were therefore offered to immigrants. The passage money from Europe and the expenses of the immigrant to his new home have been paid and land for settlement sold at low rates. It is estimated that over 1,000,000 foreigners have settled in the country during the last twelve years, and the proportionate increase of population in the same period has been twice as great as that of the United States. Grazing lands have been sold at nominal prices to immigrants, or leased for terms of years in lots of 6,000 acres at a rental of $100 a year. Bonds were issued not only by the government but by the provinces, by the municipalities and by the railroads, and all were readily taken in England and Germany. To enable the emigrants to pay for and to cultivate their land, the owner of real estate on depositing his title deeds with the hypothecary banks and having a valuation of his real estate, received cedulas, or bonds of the bank, for one-half its appraised value; these cedulas for large amounts were issued and sold in Europe; and thus, as ever, more money was required, more bonds were issued. In 1889, a year of peace, the public debt was increased 120 per cent., and it is now said to be over one thousand four hundred millions of dollars, and the principal and interest of two-thirds of this amount is payable in gold at a premium of 200 per cent.

In 1890 there was no money to meet the interest and general prostration ensued.

It is difficult to ascertain the debt of the republic ; but if the accounts given in the English publications are correct the debt is greater in proportion to its population and wealth than that of any other country in the world. The only hope of the Argentine Republic is to wipe out the debt by insolvency and bankruptcy.

Peru.

A strip of land with 1200 miles of sea coast, without a natural harbor, and 200 to 300 miles wide, consisting of a plain, mountains, a plateau, and still another range of mountains—this is Peru.

In the west, where the rain never falls, are numerous small rivers, to-day mountain torrents, to-morrow dry, rocky beds.

Between the lofty ranges of snow mountains is the highest plateau in the world, after Thibet. The southern part of this plateau is dry and desolate, the northern portion is well watered, with beautiful streams running now through deep cañons and then through rich, fertile valleys steadily descending toward the northeast ; the valleys growing ever broader, warmer and more delightful, until the montaña is reached, only a few hundred feet above the Atlantic, where the streams have become rivers, navigable to the ocean.

The western slope of the mountains is dry and barren, so that breadstuffs and provisions are imported from Ecuador on the north, or from lower Chili, far to the south. Yet no other country has contributed so much to the world's fertility ; for here are the great deposits of guano and nitrates, more valuable than mines of gold and silver. These deposits yielded for over thirty years a net annual revenue of $20,000,000.

The eastern slope, rich and fertile, producing every tree and flower, all fruits and vegetables grown in any part of the world ; in the mountains, mines of gold and silver, platinum and cinnabar, copper and tin, lead and iron, coal and petroleum, nitrates and asphalt : a bankrupt nation in the midst of untold wealth—such is Peru.

To bring the minerals down to the ocean, tens of millions of dollars were expended on thirteen roads ; but though none of them were ever finished, they reached a few of the poorer mines. Seven of these roads were built by the government, the others by private parties.

The sales of guano and the production of gold and silver made Peru a proud and wealthy nation. Everything prospered until the war with Chili, from 1879 to 1883, ending in the defeat of Peru and the loss of a portion of her territory, including a large part of her guano deposit. She was unable to keep her railroads in operation, much less to extend them, or to pay the interest on her bonds; and thus bankruptcy followed defeat. At last, after fourteen years of default and six years of negotiation, a contract was concluded with Peru by Mr. M. P. Grace, of New York, in January, 1890, on behalf of the bondholders. The bondholders became concessionaires, and in consideration of the release of the bonded debt due to them by Peru, receive valuable concessions, of money, of mines, of railroads, of lands and of guano. These concessions include among other things a government subsidy of $400,000 a year, secured from the customs of Callao; the mines of Cerro de Pasco, which have yielded a yearly average of $2,000,000 for over one hundred years; the entire railway system (769 miles in length) of the state; a grant of 5,000,000 acres for the extension of the Lake Titicaca railroad; a grant of 4,500,000 acres for the extension of the Central or Oroya railroad to the navigable waters of the Ucayala, one of the main tributaries of the Amazon; the exclusive control of the guano deposit until 2,000,000 tons have been sold, from which they expect to sell at least 80,000 tons a year, which will net $1,000,000. The concessionaires on their part agree to liquidate the Peruvian debt, to repair the railroads, and construct 974 miles in extension of the existing system at an estimated cost of $16,000,000, and to assume certain other obligations to a limited amount.

This, perhaps the most remarkable settlement ever made between a bankrupt nation and its creditor, is due largely to Mr. Grace, and cannot fail to develop the resources of Peru and restore her days of prosperity.

Trade Relations with the United States.

It appears from the foregoing statement that all the carrying trade to and from South America, by water, is by foreign steamers; that only four of these are American lines; that the railroads are generally owned and operated by Englishmen; that the bankers and merchants are Englishmen or Germans; that

many of the mines, cattle ranches, coffee plantations and other estates are owned by non-resident foreigners ; and that the largest consumer of South American products is the United States, although this country sells few of its manufactures and products to South America.

The English steamers, in the usual course of trade, load with English dry-goods consigned to English houses in South America, where they are sold and the proceeds invested in coffee and other products, which are sent in the same vessels to the United States ; there sold, and the money invested in our produce for carriage to England. The English therefore obtain the profits on manufacture, on the freight to South America, on the sale of the goods in South America, on the freight from South America to the United States, on the sale of those goods, and finally on the freight of the American breadstuffs carried to Europe. For the successful prosecution of any trade between two countries, it is essential that each shall produce what the other wants: Thus, we raise breadstuffs which are not grown on the Caribbean sea nor in the valley of the Amazon, nor in Peru or upper Chili, and we also manufacture goods required in all parts of South America, where they have few factories ; there, coffee, wool, India rubber, cacao and other articles are produced, which we require. Here, therefore, are the factors necessary for a prosperous trade. Such a trade we formerly enjoyed with South America : In 1852, six hundred United States vessels entered the harbor of Buenos Ayres, or more than twice as many as those of all other nations combined ; now only two per cent. of the shipping entering that harbor belongs to us. Our war came, iron steamers took the place of wooden sailing ships, we levied a duty on coffee and rubber, South America levied a duty on our manufactures, other countries subsidized lines of steamers, while we refused all subsidies ; and our trade with South America rapidly fell off, as freights were carried cheaper in foreign than in American ships, and the trade of South America passed from the United States to England, Germany and France.

It is said that we cannot regain this trade, because we cannot, without protection maintain our own manufactures, much less compete with the Europeans in an open market ; and therefore that it will be a waste of money to subsidize our vessels. But the larger the market the cheaper we can manufacture, and we can

surely find a large and new market for our breadstuffs. It is worth while to make the experiment at least, to give our vessels the same subsidy and protection that has been given to the European lines, and to our merchants and bankers, an opportunity to regain the trade with South America. At first the odds will be greatly against us; but if we show the same energy and ability in cultivating trade with South America that our fathers exhibited, and that we have shown in other directions, we must ultimately succeed.

It is now proposed to tax the products of South America, unless the South American states reciprocate and admit our breadstuffs and manufactures free. If this scheme can be carried out, a large and prosperous commerce will be established between North America and South America, and American houses will be started in the large cities to dispose of our manufactures and ship the products to South America. By this interchange, our manufacturers and farmers will find a market for their goods and products, our mercantile navy freight for its vessels, and our bankers and merchants a profitable business in the large cities of South America.

Railroads.

We have already referred to the several railroads which start from the little ports on the Pacific coast and run up the valleys toward the Andes. Three of these, among the most remarkable roads in the world, ascend to a greater elevation than any others, and to a height which in Europe or the United States, would be above the snow level. They were intended to reach the gold and silver mines between the Andes and Cordilleras.

The first, called the Oroya or Central railroad, 111 miles in length, starts from Callao on the Pacific, and crosses the Andes, at an elevation of nearly 15,000 feet, to the plateau between the Andes and the Cordilleras. It is expected that this road will be extended to the navigable waters of the Amazon.

Three hundred miles southward, the second road runs from Molendo, Peru, by Arequipa to Puno on Lake Titicaca, and thence northward on the plateau 407 miles to San Rosas, on the route to Cuzco. The road from Mollendo to Arequipa runs through a country so destitute of water that the only supply for

the engines and stations is by an iron pipe 8 inches in diameter, and 50 miles long, running from an elevation of 7,000 feet to the sea-coast.

Seven or eight hundred miles south of Mollendo, a line runs from Valparaiso in Chili to Buenos Ayres, 870 miles. It crosses the Andes through a tunnel two miles long, at an elevation of 10,568 feet above the sea; after leaving the mountains it runs over the pampas two hundred miles, without a curve or a grade over three feet above or below the plain, and will soon be completed from ocean to ocean.

From Rio de Janeiro several roads have been constructed over the mountains west of that city to different parts of Brazil. One of these runs westwardly toward Bolivia.

Bolivia has recently granted concessions for the construction of a road from La Paz to connect on the west with the Peruvian roads at Lake Titicaca, and on the east with the Brazilian lines on the Pacific; and thus ultimately a road will run from Mollendo on the Atlantic ocean by Lake Titicaca and La Paz to Rio de Janeiro.

There are now from 6000 to 7000 miles of road in operation in the Argentine Republic, 5000 to 6000 in Brazil, and 3000 to 4000 miles in the other states, making a total of about 15,000 miles of railroad in operation.

A proposition is now before the public for the construction of the Pan-American railroad, from the Caribbean sea southward to the Argentine Republic to connect with the Peruvian, with the Brazilian, and ultimately with the Argentine roads.

The route that seems to be most feasible starts at Cartagena, where there is a splendid bay and harbor, within three days sail from Galveston and six days from New York. It follows the valley of the Magdalena river 800 miles to Dividal, 1700 feet above the sea. Here, near the head waters of the Magdalena, the route crosses the eastern Cordilleras at an elevation of about 6,500 feet to the head waters of the Caqueta, or Yapura, a branch of the Amazon, and thence runs down that river 375 miles to the mouth of the Engarros, only 550 feet above tide-water. From the Caqueta river, the route passes through Ecuador to Iquitos, Peru, crossing fourteen tributaries of the Amazon. From Iquitos the route ascends the Amazon and the Ucayle, one of its southern tributaries, 500 miles to Napal, then continues across the montaña

and the numerous valleys of the Amazon about 600 miles, to Santa Cruz in Bolivia, or 2400 miles from Cartagena; while a branch will run up the Apurimac to Cuzco.

This road would run for 2000 miles along the foot hills of the Cordilleras, and in these mountains is probably the richest mining region in the world; here gold, silver, copper, lead and coal mines are found. The gold and silver mines do not seem to have been thoroughly explored, although untold millions of the precious metals have been extracted from them. These mines are generally in cold and treeless regions, where coal, labor and food are difficult to obtain; where freights are high and machinery of all kinds most expensive. This road would greatly facilitate the opening and working of these mines, and not only make them profitable but develop a large and lucrative traffic.

Much of Bolivia is above the navigable waters of the Amazon, and many of its provinces are now land-locked and almost isolated from communication with the outer world. The proposed road would cross many branches of the Amazon, and thus connect with fifty thousand miles of navigable waters, at least 9000 of which are above Iquitos; and it is claimed that the business from 20,000 miles of navigable waters would find by this route a nearer outlet to Europe and America than by Para.

There is every variety of climate on the route. The valley of the Magdalena is sultry; every afternoon the water grows tepid, and the stones burning hot, in the sun's rays. In crossing the Cordilleras the cool breezes of the mountains are met. The road then descends into the valley of the Amazon, through a rich and not unhealthy region, though it has the damp, hot, climate of a tropical country, and thence passes through the montaña district, which is generally high, healthy and fertile.

This country, under a wise government, is capable of sustaining an immense population and giving abundant support to such a railroad; but it is now unexplored, excepting the valleys of the navigable rivers, and is uninhabited save by wild and savage Indians, though these are not numerous.

The route up the Magdalena may be expensive by reason of the climate, but not otherwise. The road in the mountain district will necessarily be costly, and also in the sierras, because it must

cross the numerous branches of the Amazon, and the precipitous mountains between the valleys, and from the difficulty of obtaining labor and material for construction. Mr. Orton, who crossed from one branch of the Napo to another, says :

"We crossed the stream and the intervening ridges, and their name is legion ; sometimes we were climbing up an almost vertical ascent, then descending into a deep dark ravine to find a furious river, while on the lowlands the path seemed lost in the dense bamboos, until the Indians opened a passage with their machetes and we crept under the low arcade of foliage."

Even if the railroad were built, almost all the produce of the Amazon and montaña country could be carried more cheaply by water to Para than by rail to Cartagena ; while goods from England and America would be carried cheaper by steamer to the Isthmus of Panama, and thence to all ports on the Pacific ocean, than by steamer to Cartagena and up the Magdalena across the Andes to the valley of the Amazon, and then a second time across the Andes to the Pacific ocean. The greater part of the business to and from the mines would be by the railroad.

At present, as there could not be sufficient business to pay the operating expenses of such a road, it must rely on government subsidies to build and operate it.

Those who have given the most consideration to the subject say that the road need not be an expensive one to operate, and in the important element of time it would have a great advantage over the route via Para. As a means of promoting the settlement of the country and developing commerce, which cannot exist without population, the railroad would seem to be a necessity, for navigation has neither opened the country nor brought in emigrants and we may fairly assume that it will not suffice in the future.

Conclusion.

In conclusion I will quote from two writers on tropical America. Buckle says :

"Amidst the pomp and splendor of nature, no place is left for man ; he is reduced to insignificance by the majesty with which he is surrounded. The forces that oppose are so formidable that he has never been able to make head against them.

The energies of nature have hampered his spirit : nowhere else is the contrast so painful between the grandeur of the external world and

the littleness of the internal, and the mind, cowed by this unequal struggle, has been unable to advance.

Here, where physical resources are the most powerful, where vegetation and animals are most abundant, where the soil is watered by the noblest rivers and the coast studded by the finest harbors, the profusion of nature has hindered social progress and opposed that accumulation of wealth without which progress is impossible.

Mr. Bates, the naturalist, after a residence of many years on the Amazon, closes his book as follows :

"The superiority of the bleak north to tropical regions is only in its social aspects, for I hold to the opinion that although humanity can reach an advanced state of culture only by battling with the inclemency of nature in high latitudes, it is under the equator alone that the perfect race of the future will attain to complete fruition of man's beautiful heritage, the earth."

Washington, January, 1891.